



Appendix B. Analysis of dimethoate use in California over 2001-2005

Data are available for pesticide use in California over 2001-2005 (CPUR 2007a). These data include information on specific applications of pesticides, including the type of pesticide applied, the crop to which the pesticide was applied, the application date, the mass (in lbs) applied and the area of the application.

During 2001-2005, approximately 1.25 million pounds of dimethoate were applied in California, with an annual average of approximately 0.25 million pounds. A total of 2.7 million acres were treated with dimethoate during 2001-2005, with an average of approximately 0.54 million acres per year (**Table B.1**). Use data from 2001-2005 for California indicate that dimethoate is applied throughout the year, with the majority of applications occurring during the summer months (June-August) (**Table B.2 and Figure B.1**).

Table B.1. Total pounds of dimethoate applied per year and number of acres treated with dimethoate during 2001-2005 in California.

year	lbs applied	acres treated
2001	250,028	508,090
2002	245,084	538,970
2003	232,134	503,698
2004	264,451	564,900
2005	255,327	577,857
2001-2005 (total)	1,247,024	2,693,514
average	249,405	538,703
Standard deviation	12,029	33,098

Table B.2. Total amount of dimethoate applied per month over 2001-2005 in California.

month	lbs applied	% of total
January	44,958	3.6%
February	36,699	2.9%
March	97,784	7.8%
April	74,884	6.0%
May	112,815	9.0%
June	147,358	11.8%
July	292,587	23.5%
August	218,261	17.5%
September	94,664	7.6%
October	62,501	5.0%
November	25,491	2.0%
December	39,022	3.1%

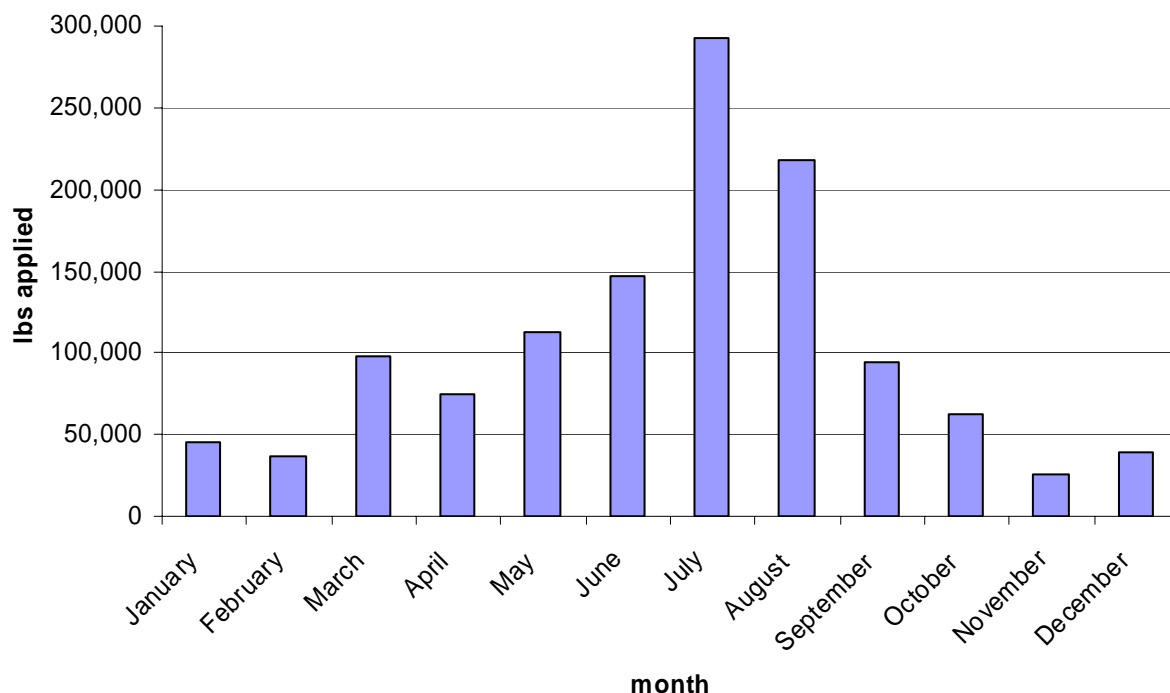


Figure B.1. Total amount of dimethoate applied per month during 2001-2005.

When considering the sites where dimethoate was applied over 2001-2005, uses included 59 different categories. The majority of dimethoate use in California during this time period was on alfalfa, tomato, bean and broccoli. All dimethoate uses reported in the CADPR database are included in **Table B.3**, along with the contribution of these uses to the overall mass of dimethoate applied during this time period and the timing of the applications for each use. Some of the uses included in **Table B.3** are not currently registered and may represent either historic uses that have been cancelled, misreported uses, or misuse.

Table B.3. Summary of dimethoate uses in CAPUR database for 2001-2005.

Use	Currently registered use?	% of overall dimethoate mass applied	Maximum application month	Range of predominant applications
alfalfa	yes	19.7	March	October-April
tomato	yes	13.5	July	May-September
bean	yes	11.3	August	June-September
broccoli	yes	10.6	September	March-November
corn	yes	9.3	July	June-August
citrus*	yes	8.4	May	April-August
lettuce (head and leaf)	yes	7.5	October	March-October
cotton	yes	7.1	August	May-September
cauliflower	yes	2.4	September	March-October
wheat	yes	2.3	March	March-April

sorghum	yes	1.8	July	July
celery	yes	1.4	August	May-October
grape	no	1.4	NR	NR
cabbage	no	0.7	NR	NR
safflower	yes	0.6	June	May-July
Brussels sprout	yes	0.5	August	July-November
melon**	yes	0.4	August	June-September
pepper (fruiting and spice)	yes	0.4	August	May-September
outdoor nursery	yes	0.2	August	July-September
peas	yes	0.1	June	March-October
potato	yes	0.1	July	June-August
spinach	no	0.1	NR	NR
animal premise	no	<0.1	NR	NR
apple	no	<0.1	NR	NR
barley	no	<0.1	NR	NR
beet	no	<0.1	NR	NR
bok choy	no	<0.1	NR	NR
chervil	no	<0.1	NR	NR
Chinese cabbage	yes	<0.1	NA	NA
Chinese greens	no	<0.1	NR	NR
Christmas trees	no	<0.1	NR	NR
collard	no	<0.1	NR	NR
endive (escarole)	yes	<0.1	August	Feb-October
forage hay/silage	no	<0.1	NR	NR
kale	yes	<0.1	August	April-October
kohlrabi	yes	<0.1	NA	NA
mustard	yes	<0.1	NA	NA
greenhouse	no	<0.1	NR	NR
pastureland	no	<0.1	NR	NR
peach	no	<0.1	NR	NR
pear	yes	<0.1	NA	NA
pecan	yes	<0.1	June	NA
pimento	no	<0.1	NR	NR
research commodity	no	<0.1	NR	NR
rights of way	no	<0.1	NR	NR
squash	no	<0.1	NR	NR
sudangrass	no	<0.1	NR	NR
Swiss chard	yes	<0.1	NA	NA
turnip	yes	<0.1	NA	NA
uncultivated	no	<0.1	NR	NR
unknown	no	<0.1	NR	NR

NA=not available (due to data limitations)

NR=not relevant

*including grapefruit, lemon, orange, tangelo, tangerine and "citrus"

**including cantaloupe, watermelons and "melons"

In order to select appropriate application dates for estimating aquatic exposure concentrations of dimethoate originating from specific uses (i.e. using PRZM/EXAMS), application timing of dimethoate was considered using available California use data from

2001-2005. Pounds of dimethoate applied over 2001-2005 were summed for each of the 12 months. These data were analyzed in two ways. First, the % of dimethoate applied in that month only to that use compared to the sum of applications to that use was calculated. Second, the percent of dimethoate applied in that month to that use, compared to the sum of dimethoate applied to all uses in that month was calculated. These data are summarized in **Tables B.4 to B.14**.

Table B.4. Total lbs of dimethoate applied per month in California to ALFALFA over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	38,756	15.7%	86.2%
February	27,664	11.2%	75.4%
March	57,706	23.4%	59.0%
April	19,797	8.0%	26.4%
May	9,349	3.8%	8.3%
June	7,999	3.2%	5.4%
July	12,214	5.0%	4.2%
August	7,731	3.1%	3.5%
September	2,378	1.0%	2.5%
October	13,845	5.6%	22.2%
November	15,044	6.1%	59.0%
December	33,691	13.7%	86.3%
Total	246,172	100.0%	19.7%

Table B.5. Total lbs of dimethoate applied per month in California to BEANS over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	0	0.0%	0.0%
February	42	0.0%	0.1%
March	424	0.3%	0.4%
April	166	0.1%	0.2%
May	207	0.1%	0.2%
June	8,063	5.7%	5.5%
July	46,968	33.3%	16.1%
August	69,103	49.0%	31.7%
September	15,832	11.2%	16.7%
October	351	0.2%	0.6%
November	4	0.0%	0.0%
December	0	0.0%	0.0%
Total	141,158	100.0%	11.3%

Table B.6. Total lbs of dimethoate applied per month in California to BROCCOLI over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	2,976	2.3%	6.6%
February	3,836	2.9%	10.5%
March	10,077	7.7%	10.3%
April	11,156	8.5%	14.9%
May	13,595	10.3%	12.1%
June	13,941	10.6%	9.5%
July	15,254	11.6%	5.2%
August	16,791	12.8%	7.7%
September	18,447	14.0%	19.5%
October	15,490	11.8%	24.8%
November	6,860	5.2%	26.9%
December	3,242	2.5%	8.3%
Total	131,664	100.0%	10.6%

Table B.7. Total lbs of dimethoate applied per month in California to CAULIFLOWER over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	630	2.1%	1.4%
February	998	3.4%	2.7%
March	3,258	11.0%	3.3%
April	3,220	10.9%	4.3%
May	2,574	8.7%	2.3%
June	3,582	12.1%	2.4%
July	3,803	12.9%	1.3%
August	3,771	12.7%	1.7%
September	4,001	13.5%	4.2%
October	2,840	9.6%	4.5%
November	592	2.0%	2.3%
December	311	1.1%	0.8%
Total	29,579	100.0%	2.4%

Table B.8. Total lbs of dimethoate applied per month in California to CITRUS over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	6	0.0%	0.0%
February	557	0.5%	1.5%
March	1,425	1.4%	1.5%
April	13,651	13.1%	18.2%
May	42,440	40.6%	37.6%
June	24,958	23.9%	16.9%
July	8,021	7.7%	2.7%
August	8,652	8.3%	4.0%
September	3,416	3.3%	3.6%
October	1,251	1.2%	2.0%
November	181	0.2%	0.7%
December	29	0.0%	0.1%
Total	104,587	100.0%	8.4%

Table B.9. Total lbs of dimethoate applied per month in California to CORN over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	0	0.0%	0.0%
February	16	0.0%	0.0%
March	175	0.2%	0.2%
April	268	0.2%	0.4%
May	3,117	2.7%	2.8%
June	21,280	18.3%	14.4%
July	62,550	53.9%	21.4%
August	26,181	22.6%	12.0%
September	2,257	1.9%	2.4%
October	132	0.1%	0.2%
November	0	0.0%	0.0%
December	16	0.0%	0.0%
Total	115,993	100.0%	9.3%

Table B.10. Total lbs of dimethoate applied per month in California to COTTON over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	0	0.0%	0.0%
February	14	0.0%	0.0%
March	17	0.0%	0.0%
April	489	0.6%	0.7%
May	5,842	6.6%	5.2%
June	22,884	25.8%	15.5%
July	18,509	20.9%	6.3%
August	28,386	32.0%	13.0%
September	11,487	12.9%	12.1%
October	1,128	1.3%	1.8%
November	0	0.0%	0.0%
December	0	0.0%	0.0%
Total	88,757	100.0%	7.1%

Table B.11. Total lbs of dimethoate applied per month in California to LETTUCE over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	1,522	1.6%	3.4%
February	2,271	2.4%	6.2%
March	6,583	7.1%	6.7%
April	7,966	8.6%	10.6%
May	7,600	8.2%	6.7%
June	6,880	7.4%	4.7%
July	8,824	9.5%	3.0%
August	11,228	12.1%	5.1%
September	14,644	15.7%	15.5%
October	22,466	24.1%	35.9%
November	1,493	1.6%	5.9%
December	1,601	1.7%	4.1%
Total	93,078	100.0%	7.5%

Table B.12. Total lbs of dimethoate applied per month in California to SORGHUM over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	0	0.0%	0.0%
February	0	0.0%	0.0%
March	0	0.0%	0.0%
April	0	0.0%	0.0%
May	0	0.0%	0.0%
June	133	0.6%	0.1%
July	21,595	95.0%	7.4%
August	1,008	4.4%	0.5%
September	0	0.0%	0.0%
October	0	0.0%	0.0%
November	0	0.0%	0.0%
December	0	0.0%	0.0%
Total	22,737	100.0%	1.8%

Table B.13. Total lbs of dimethoate applied per month in California to TOMATO over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	0	0.0%	0.0%
February	0	0.0%	0.0%
March	394	0.2%	0.4%
April	3,376	2.0%	4.5%
May	11,819	7.0%	10.5%
June	25,909	15.4%	17.6%
July	80,672	47.9%	27.6%
August	32,327	19.2%	14.8%
September	13,673	8.1%	14.4%
October	376	0.2%	0.6%
November	0	0.0%	0.0%
December	0	0.0%	0.0%
Total	168,545	100.0%	13.5%

Table B.14. Total lbs of dimethoate applied per month in California to WHEAT over 2001-2005.

Month	lbs	% of total dimethoate applied to crop	% of total dimethoate applied to all crops
January	723	2.5%	1.6%
February	768	2.7%	2.1%
March	15,965	55.2%	16.3%
April	8,792	30.4%	11.7%
May	0	0.0%	0.0%
June	117	0.4%	0.1%
July	2,294	7.9%	0.8%
August	273	0.9%	0.1%
September	0	0.0%	0.0%
October	0	0.0%	0.0%
November	0	0.0%	0.0%
December	0	0.0%	0.0%
Total	28,932	100.0%	2.3%